Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. - 55. (Cancelled)

56. (New) An illumination system for forming a shaped illumination field comprising:

a source of electromagnetic radiation;

a first faceted mirror receiving the electromagnetic radiation from said source; and

a second faceted mirror receiving the electromagnetic radiation reflected from said first faceted mirror, said second faceted mirror having facets with a plurality of different tilts wherein electromagnetic radiation is redistributed providing a substantially uniform irradiance in the shaped illumination field,

whereby a predetermined illumination field is formed.

57. (New) An illumination system as in claim 56 further comprising:

a reflector positioned to collect and reflect the electromagnetic radiation from said source and direct the electromagnetic radiation towards said first faceted mirror.

58. (New) An illumination system as in claim 56 further comprising:

a relay positioned to receive the electromagnetic radiation from the second faceted mirror.

59. (New) An illumination system as in claim 56 wherein:

said first faceted mirror forms a plurality of images of said source on said second faceted mirror and said second faceted mirror redirects the electromagnetic radiation to form an illumination field having a predetermined shape with a desired radiant intensity.

60. (New) An illumination system as in claim 56 wherein:

said first and second faceted mirrors comprise a plurality of concave mirror surfaces.

61. (New) An illumination system as in claim 60 wherein:

each of the plurality of concave mirrors of said first faceted mirror has an arcuate shape.

62. (New) An illumination system as in claim 60 wherein:

each of the plurality of concave mirrors of said second faceted mirror has a rectangular shape.

63. (New) An illumination system as in claim 60 wherein:

a desired irradiance distribution is provided.

64. (New) An illumination system as in claim 56 wherein:

the electromagnetic radiation has a wavelength in the extreme ultraviolet.

65. (New) An illumination system as in claim 56 wherein:

said first faceted mirror comprises at least a three by ten mirror array; and

said second faceted mirror comprises at least a six by six mirror array.

66. (New) An illumination system comprising:

a source of electromagnetic radiation;

a first faceted mirror receiving the electromagnetic radiation from said source; and

a second faceted mirror receiving the electromagnetic radiation reflected from said first faceted mirror,

said first and second faceted mirrors comprise a plurality of concave mirror surfaces, and

said plurality of concave mirrors have a tilt arrangement, whereby energy is distributed as desired,

whereby a predetermined illumination field is formed.

67. (New) An illumination system comprising:

a source of extreme ultraviolet electromagnetic radiation;

first reflective fly's eye means, positioned to receive electromagnetic radiation from said source, for forming multiple images of said source; and

second reflective fly's eye means, positioned to receive electromagnetic radiation reflected and imaged by said first reflective fly's eye means, for overlapping and redistributing the multiple images of the source received from said first reflective fly's eye means and forming an illumination field having a predetermined radiant intensity and predetermined shape.

68. (New) An illumination system as in claim 67 further comprising:

reflector means, positioned to receive the electromagnetic radiation from said source, for collecting the electromagnetic radiation from said source and reflecting the electromagnetic radiation towards said first reflective fly's eye means.

69. (New) An illumination system as in claim 67 further comprising:

a relay positioned to receive electromagnetic radiation reflected from said second fly's eye means.

70. (New) An illumination system as in claim 67 wherein:

said first reflective fly's eye means comprises a first mirror array comprising a plurality of concave mirrors; and

said second reflective fly's eye means comprises a second mirror array comprising a plurality of concave mirrors.

71. (New) An illumination system as in claim 70 wherein:

a desired irradiance distribution is provided.

72. (New) An illumination system comprising:

a source of extreme ultraviolet electromagnetic radiation;

first reflective fly's eye means, positioned to receive electromagnetic radiation from said source, for forming multiple images of said source, said first reflective fly's eye means comprises a first mirror array comprising a plurality of concave mirrors, each of the plurality of concave mirrors of said first mirror array are tilted; and

second reflective fly's eye means, positioned to receive electromagnetic radiation reflected and imaged by said first reflective fly's eye means, for overlapping the multiple images of the source received from said first reflective fly's eye means and forming an illumination field having a predetermined radiant intensity and predetermined shape, said second reflective fly's eye means comprises a second mirror array comprising a plurality of concave mirrors, each of the plurality of concave mirrors of said second mirror array are tilted to overlap images at the illumination field.

73. (New) An illumination system comprising:

a source of extreme ultraviolet electromagnetic radiation;

a reflector reflecting the electromagnetic radiation;

a first base, said first base having a first shaped surface;

a first reflective fly's eye having a first plurality of arcuate facets formed on the first shaped surface and positioned to receive and reflect the electromagnetic radiation;

a second base, said second base having a second shaped surface; and

a second reflective fly's eye having a second plurality of facets formed on the second shaped surface and positioned to receive and reflect the electromagnetic radiation,

the first plurality of facets positioned so as to image said source at the second plurality of facets,

the second plurality of facets positioned to form an arcuate illumination field having a desired irradiance and radiant intensity.

74. (New) An illumination system as in claim 73 wherein:

the first plurality of arcuate facets are randomly tilted, so as to distribute energy on the second plurality of facets.

75. (New) An illumination system as in claim 73 further comprising:

a relay positioned to receive electromagnetic radiation reflected from said second reflective fly's eye.

76. (New) A condenser for an illumination system used to project the image of a reticle onto a photosensitive substrate comprising:

first reflective fly's eye means, positioned to receive electromagnetic radiation from a source, for forming multiple images of the source; and

second reflective fly's eye means, positioned to receive electromagnetic radiation reflected and imaged by said first reflective fly's eye means, for overlapping and redistributing the multiple images formed by said first reflective fly's eye means and forming an illumination field having a predetermined radiant intensity and shape.

77. (New) A condenser as in claim 76 further comprising:

reflector means, positioned to receive electromagnetic radiation from the source, for collecting electromagnetic radiation from the source and reflecting electromagnetic radiation to said first reflective fly's eye means.

78. (New) A condenser as in claim 76 further comprising:

a relay positioned to receive electromagnetic radiation reflected from said second reflective fly's eye means.

79. (New) A condenser as in claim 76 wherein:

said first and second reflective fly's eye means each comprises a mirror array.

80. (New) A condenser for an illumination system used to project the image of a reticle onto a photosensitive substrate comprising:

first reflective fly's eye means, positioned to receive electromagnetic radiation from a source, for forming multiple images of the source; and

second reflective fly's eye means, positioned to receive electromagnetic radiation reflected and imaged by said first reflective fly's eye means, for overlapping the multiple images formed by said first reflective fly's eye means and forming an illumination field having a predetermined radiant intensity and shape,

said first and second reflective fly's eye means each comprises a mirror array,

each mirror in the mirror array of the first reflective fly's eye means is randomly tilted within a predetermined range; and

the tilt of the mirrors in the mirror array of the second reflective fly's eye means are used to compensate and form the illumination field.

81. (New) A condenser for an illumination system used to project the image of a reticle onto a photosensitive substrate comprising:

a first reflective fly's eye comprising a first plurality of mirrors forming an array, each of the first plurality of mirrors having a predetermined displacement and angular tilt;

a second reflective fly's eye comprising a second plurality of mirrors forming an array, each of the second plurality of mirrors having a predetermined displacement and angular

tilt whereby electromagnetic radiation reflected from the first plurality of mirrors is received by the second plurality of mirrors,

whereby the predetermined displacement and angular tilt of the first and second plurality of mirrors results in forming an illumination field of predetermined shape with a desired radiant intensity.

82. (New) A condenser as in claim 81 further comprising:

a relay positioned to receive electromagnetic radiation reflected from said second reflective fly's eye.

83. (New) A condenser for an illumination system used to project the image of a reticle onto a photosensitive substrate comprising:

a first faceted mirror positioned to receive electromagnetic radiation from a source and form multiple images of the source; and

a second faceted mirror positioned to receive the multiple images of the source formed by said first faceted mirror and to overlap and redistribute the multiple images formed by said first faceted mirror,

whereby an illumination field having a predetermined radiant intensity and shape is formed.

84. (New) A condenser for an illumination system as in claim 83 wherein:

said first faceted mirror comprises arcuate facets.

85. (New) A condenser for an illumination system as in claim 83 wherein:

said first and second faceted mirrors each have a number of facets,

whereby the number of facets are varied to adjust uniformity at the illumination field.

86. (New) A condenser for an illumination system as in claim 83 wherein:

an illumination region received by said first faceted mirror is adjusted in size.

87. (New) A condenser for an illumination system as in claim 83 wherein:

said first and second faceted mirrors each have a number of facets,

whereby the number of facets are varied to modify radiant intensity at the illumination field.

88. (New) A condenser for an illumination system as in claim 87 wherein:

correlation between the number of facets of the first and second faceted mirrors is varied,

whereby radiant intensity may be modified.

89. (New) A condenser for an illumination system as in claim 87 wherein:

the size, shape, and location of the number of facets of the second faceted mirror are varied.

90. (New) A condenser for an illumination system as in claim 83 wherein:

undesirable obscurations are eliminated by correlating the number of facets of the first faceted mirror receiving predetermined energy to the second faceted mirror,

whereby insignificant energy in the undesirable obscuration is eliminated.

91. (New) A condenser for an illumination system used to project the image of a reticle onto a photosensitive substrate comprising:

a first faceted mirror positioned to receive electromagnetic radiation from a source and form multiple images of the source; and

a second faceted mirror positioned to receive the multiple images of the source formed by said first faceted mirror and to overlap the multiple images formed by said first faceted mirror,

said first and second faceted mirrors each have a number of facets, whereby the number of facets are varied to modify radiant intensity at an illumination field,

a position of the multiple images of the source formed on the second faceted mirror are varied by tilting each of the number of facets of the first faceted mirror,

whereby the illumination field having a predetermined radiant intensity and shape is formed.